

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Inventor(s) : Chris HARRISON  
Serial No. : 10/752,977  
Filed : January 7, 2004  
For : METHOD AND APPARATUS FOR PROVIDING  
TEMPERATURE-REGULATED BATTERY CHARGING  
Examiner : Aaron C. Piggush  
Group Art Unit : 2838  
Confirmation No. : 4797

**DECLARATION**

**Pursuant to § 1.132**

The undersigned, Chris Harrison, hereby declares as follows:

1. I received a Masters Degree in Computer Science in 2006 from New York University, where I studied Computer Science. I have worked at IBM Research and AT&T Labs-Research. I have been fundamentally involved in the field of Computer Science for over 6 years, during which time I have published numerous papers at prestigious international conferences. My curriculum vitae is attached. I am the sole inventor in the above-identified application.

2. I have reviewed the disclosures of U.S. Patent Nos. 6,016,047 (Notten et al. – the “Notten Patent”), 5,049,804 (Hutchings – the “Hutchings Patent”), 5,767,659 (Farley – the “Farley Patent”), 5,889,385 (Podrazhansky et al. - “the Podrazhansky Patent”) and 6,188,202 (Yagi – the “Yagi Patent”), together with the Examiner’s comments in the latest Final Office Action mailed January 6, 2009 in the above-referenced case. I understand that the Examiner is relying on the Notten Patent’s disclosure to assert that it would have been obvious as of January 7, 2004, to provide a battery charger configured to provide a

temperature-regulated charging of a battery comprising a processing arrangement operable to apply a particular amount of a charge to the battery based on the temperature data of the battery, wherein the processing arrangement is configured to maintain the battery at a predetermined threshold temperature during at least a majority of an entire time period in which the charge is applied to the battery, as recited in amended independent claim 1 of the above-identified application as well as a related process or storage medium as recited in amended independent claims 15 and 29 of the above-identified application, respectively. I believe the Examiner's reliance on the disclosure of the Notten Patent is misplaced at least for the following reasons.

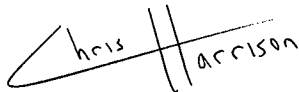
3. In col. 26, Ins. 5-35 of the Notten Patent, there is a general discussion of a temperature-controlled battery charging concept. However, the Notten Patent does not teach or suggest how the concept can be implemented or achieved without any undue experimentation. For example, the above-described section of the Notten Patent does not provide any enabling disclosure as to how the current or voltage level supplied by the battery charger may be controlled by the control loop. Indeed, specific enabling information on how the battery charger is to be controlled by the control loop is not provided by the Notten Patent at all. While smart battery chargers typically use some form of a control loop (e.g., read sensors, determine changes, repeat), their specifics may vary greatly. In my opinion, one of ordinary skill in the art on or before January 7, 2004 would in no way be able to implement such a control loop based on the brief discussion of the Notten Patent referenced in the Office Action without undue experimentation.

4. In addition, the Notten Patent does not provide any enabling teaching or suggestion as to how the battery charger may use a pulsed-voltage or pulsed-current charging scheme, where the control loop controls, for instance, the pulse duration and/or pulse shape. Indeed, col. 26, Ins. 5-35 of the Notten Patent relied on by the Examiner does not explain how the charge may be changed, but only that it is changed. For example, the section of the Notten Patent relied on by the Examiner does not even address whether to change the voltage up or down, or by how much or for how long. Indeed, no specific information at all regarding how the battery may be charged, including even ranges, and moreover, control of the charge to maintain the battery at a predetermined threshold temperature during at least a majority of an entire time period in which the charge is applied to the battery (as recited in amended independent claims 1, 15 and 29), is provided in the Notten Patent.

5. In summary, I firmly believe that one having ordinary skill in the art at the time the above-identified application was filed would be unable to make and use the claimed invention based on the disclosure of the Notten Patent.

6. In addition, I firmly believe that the other patents listed above that I reviewed in connection with this Final Office Action do not cure the deficiencies of the Notten Patent to teach or suggest an enabling way of how to make a battery charger configured to provide a temperature-regulated charging of a battery comprising a processing arrangement operable to apply a particular amount of a charge to the battery based on the temperature data of the battery, wherein the processing arrangement is configured to maintain the battery at a predetermined threshold temperature during at least a majority of an entire time period in which the charge is applied to the battery, as recited in amended independent claim 1 of the above-identified application, or a related process or storage medium as recited in claims 15 and 29.

7. I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under 18 U.S.C. 1001 and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

A handwritten signature in black ink, appearing to read "Chris Harrison", written over a horizontal line.

Chris Harrison

April 3, 2009  
Date

# CHRIS HARRISON

---

Human-Computer Interaction Institute  
School of Computer Science  
Carnegie Mellon University  
5000 Forbes Avenue  
Pittsburgh, PA 15213

<http://www.chrisharrison.net>  
[chris.harrison@cs.cmu.edu](mailto:chris.harrison@cs.cmu.edu)  
Phone: 412.436.3464  
Fax: 412.268.1266

## EDUCATION

- Ph.D., Human Computer Interaction (2<sup>nd</sup> year)** **2007-Present**  
School of Computer Science, Carnegie Mellon University, Pittsburgh, PA  
Advised by Dr. Scott Hudson
- Masters of Science, Computer Science** **2005-2006**  
Courant Institute of Mathematical Sciences, New York University, New York, NY  
Thesis Advisor Dr. Dennis Shasha  
GPA 3.9/4.0
- Bachelors of Arts, Computer Science** **2002-2005**  
Courant Institute of Mathematical Sciences, New York University, New York, NY  
GPA 3.9/4.0, Minor in Mathematics

## PROFESSIONAL EXPERIENCE

- Research Intern** **2006-2007**  
AT&T Labs, Shannon Laboratory, Florham Park, NJ  
Developed a novel social television application in which users could interact asynchronously.
- GIS Researcher** **2006-2007**  
Aphrodisias, Turkey (New York University)  
Assisted archeological expedition to a Greco-Roman site in Turkey. Developed comprehensive array of maps and geo-spatial analyses to predict locations of ancient structures, such as aqueducts and iron mines.
- Extreme Blue Intern** **2005**  
IBM Research, Almaden Research Center, San Jose, CA  
Created a tablet-based application to help users track information about people, events and topics.
- Systems Developer** **2004-2005**  
MCI, Ryebrook, NY  
Developed system that communicated with legacy mainframes to fetch routing diversity data.
- Student Researcher** **2000-2002**  
Curtis Instruments, Mount Kisco, NY  
Concurrent with high school. Invented novel battery charging technology; led to a patent filing in 2003.

## PUBLICATIONS

- Harrison, C.** and Hudson, S. E. 2009. Providing Dynamically Changeable Physical Buttons on a Visual Display. In *Proceedings of the 27th Annual SIGCHI Conference on Human Factors in Computing Systems* (Boston, Massachusetts, USA, April 4 - 9, 2009). CHI '09. ACM, New York, NY. (**25%** acceptance rate)
- Harrison, C.** and Hudson, S. E. 2009. Texture Displays: A Passive Approach to Tactile Presentation. In *Proceedings of the 27th Annual SIGCHI Conference on Human Factors in Computing Systems* (Boston, Massachusetts, USA, April 4 - 9, 2009). CHI '09. ACM, New York, NY. (**25%** acceptance rate)
- Harrison, C.,** Lim, B. Y., Shick, A., and Hudson, S. E. 2009. Where to Locate Wearable Displays? Reaction Time Performance of Visual Alerts from Tip to Toe. In *Proceedings of the 27th Annual SIGCHI Conference on Human Factors in Computing Systems* (Boston, Massachusetts, USA, April 4 - 9, 2009). CHI '09. ACM, New York, NY. (**25%** acceptance rate)

**Harrison, C.** and Hudson, S. E. 2008. Scratch Input: Creating Large, Inexpensive, Unpowered and Mobile finger Input Surfaces. In *Proceedings of the 21st Annual ACM Symposium on User interface Software and Technology* (Monterey, California, USA, October 19 - 22, 2008). UIST '08. ACM, New York, NY, 205-208. **(19% acceptance rate)**

**Harrison, C.** and Hudson, S. E. 2008. Lightweight Material Detection for Placement-Aware Mobile Computing. In *Proceedings of the 21st Annual ACM Symposium on User interface Software and Technology* (Monterey, California, USA, October 19 - 22, 2008). UIST '08. ACM, New York, NY, 279-282. **(19% acceptance rate)**

**Harrison, C.** and Hudson, S. E. 2008. Pseudo-3D Video Conferencing with a Generic Webcam. In *Proceedings of the 10th IEEE International Symposium on Multimedia* (Berkeley, California, USA, December 15 - 17, 2008). ISM '08. IEEE, Washington, D.C., 236-241. **(24% acceptance rate)**

**Harrison, C.**, Amento, B., and Stead, L. 2008. iEPG: An Ego-Centric Electronic Program Guide and Recommendation Interface. In *Proceedings of the 1st International Conference on Designing Interactive User Experiences for TV and Video* (Mountain View, California, USA, October 22 - 24, 2008). UXTV '08. ACM, New York, NY, 23-26.

Nathan, M., **Harrison, C.**, Yarosh, S., Terveen, L., Stead, L., Amento, B. 2008. CollaboraTV: Making Television Viewing Social Again. In *Proceedings of the 1st International Conference on Designing Interactive User Experiences for TV and Video* (Mountain View, California, USA, October 22 - 24, 2008). UXTV '08. ACM, New York, NY, 85-94.

**Harrison, C.** and Dey, A. K. 2008. Lean and zoom: proximity-aware user interface and content magnification. In *Proceedings of the 26th Annual SIGCHI Conference on Human Factors in Computing Systems* (Florence, Italy, April 5 - 10, 2008). CHI '08. ACM, New York, NY, 507-510. **(22% acceptance rate)**

**Harrison, C.**, Amento, B., Kuznetsov, S., and Bell, R. 2007. Rethinking the progress bar. In *Proceedings of the 20th Annual ACM Symposium on User interface Software and Technology* (Newport, Rhode Island, USA, October 7 - 10, 2007). UIST '07. ACM, New York, NY, 115-118. **(19% acceptance rate)**

**Harrison, C.** and Amento, B. 2007. CollaboraTV: Using Asynchronous Communication to Make TV Social Again. In *Adjunct Proceedings of The European Conference on Interactive Television Conference, EuroITV '07*.

**Harrison, C.** "The Sling in Medieval Europe." *The Bulletin of Primitive Technology*. Vol #31, Spring 2006.

## BOOK CHAPTERS

Amento, B., **Harrison, C.**, Nathan, M., and Terveen, L. 2009. Chapter XII, Asynchronous Communication: Fostering Social Interaction with CollaboraTV. 204-224. In *Social Interactive Television: Immersive Shared Experiences and Perspectives*. Eds. Geerts, D., Cesar, P., and Chorianopoulos, K. IGI Global, Hersey, PA.

## PATENTS PENDING

12/242,605	Social Graph Electronic Program Guide	2008
12/144,418	Collaborative Media Stream Bookmarking	2008
12/144,397	Intelligent Navigation in Asynchronously Annotated Media Streams	2008
12/113,704	Visually Animated Avatars in Social Interactive Television	2008
12/113,028	Dynamic Synchronization in Multi-Viewer Asynchronous Media Streams	2008
12/112,981	Dynamic Length Advertising for Viewer Synchronization in Asynchronous Streaming Media	2008
12/032,974	Dynamic Voice Mail Synthesis Using Recorded Vocabulary Thesaurus	2008
12/006,311	Automatic Rating System Using Background Audio Cues	2008
11/824,479	System and Method of Providing Video Content Commentary	2007
11/810,395	Interest Profiles for Audio and/or Video Streams	2007
11/725,992	A System and Method for Presenting Alternative Advertising Data	2007
11/422,898	Source Code Commenting via Speech Recording and Recognition	2005
11/422,468	Gesture-Based Transient-Prioritization Process Scheduling	2005
10/752,977	Method and Apparatus for Providing Temperature-Regulated Battery	2003

## STUDENTS SUPERVISED

<b>Zhiquan Yeo</b>	<b>2007-2008</b>
Undergraduate Independent Study, with Scott Hudson. Researched perceptually augmented progress bars.	
<b>Jason Mirra</b>	<b>2008</b>
Undergraduate Independent Study, with Scott Hudson. Developed intelligent audio techniques for noisy environments.	

## SERVICE

- Third International Conference on Tangible and Embedded Interaction (TEI '09)** 2009  
Program Committee
- Computer Science Department, New York University** 2004-2006  
Tutor and Grader: Computer Architecture (2004), Unix Tools (2004, 2005), Internet Technology (2006).

## EXHIBITIONS

- Science Express** (Indo-German train-based multimedia exhibition) 2009  
Federal Ministry for Education and Research and The Max Planck Society for the Advancement of Science, Germany.
- Experimenta Science Center** 2009  
Helibronn, Germany. Internet visualizations included in exhibit on communication and technical media.
- Places & Spaces: Mapping Science Exhibit** 2008  
The National Science Library of the Chinese Academy of Sciences, Beijing, China. Provided data. May 17 - June 30.
- W(e are) here: Mapping the Human Experience** 2008  
Intermedia Arts (gallery), Minneapolis, MN. March 31 - May 9.
- Artistic Mediums** 2008  
Detroit Museum of New Art, Detroit, MI. April 5 - 26.

## INVITED TALKS, LECTURES, PRESENTATIONS AND DEMONSTRATIONS

- SIGGRAPH 2009 Emerging Technologies** 2009  
Invited to present Scratch Input and other work at E-Tech demos. New Orleans, LA, August 3-7.
- Designing Human Centered Systems** 2009  
Presented guest lecture to undergraduate class on visual perception in graphical systems, as well as current research.
- 44<sup>th</sup> Student Conference on Linguistics** 2008  
Delivered 60-minute keynote address on perception in information visualization. Münster, Germany. November 22.
- Intel Research Seattle, Open House** 2008  
Presented Scratch Input and Pseudo-3D Video Conferencing to Intel researchers and executives, as well as to the public.

## WORKSHOP PARTICIPATION

- Surrounded by Persuasive Ambient Intelligence** 2008  
Twenty-Sixth Annual SIGCHI Conference on Human Factors in Computing Systems, CHI '08.
- Social Interactive Television** 2007  
The European Conference on Interactive Television Conference, EuroITV '07.

## PRESS, MEDIA AND OTHER MEDIUMS

- TEQ Magazine** 2009  
Pittsburgh, PA. Several projects described in cover story on commercialization efforts at CMU's QoLT Center. Feb. issue.
- FOX Business** (television) 2009  
Reporting from CES 2009. Lean and Zoom highlighted as assistive technology in story on "gadgets for senior citizens."
- Los Angeles Times** (newspaper) 2009  
Lean and Zoom project mentioned in "grandparents get their widgets on" article. January 10.
- Lean and Zoom: Here's to the Future** (web) 2009  
Front-page story on Carnegie Mellon University's website about my research at the HCI Institute.
- Kopfball** (television) 2009  
WDR, Cologne, Germany. Internet map visualization used in public-broadcast science show on how the Internet works.

<b>No Small Matter</b> (book)	2009
Felice Frankel. Harvard University Press, Cambridge, MA. Internet map graphic of North America used as figure.	
<b>Leaders Make the Future</b> (book)	2009
Berrett-Koehler Publishers, San Francisco, CA. Internet map used for cover.	
<b>La nuova ecologia politica</b> (book)	2009
G.G. Feltrinelli Editore S.r.l., Milan, Italy. Clusterball visualization used for cover.	
<b>Communications of the ACM</b> (magazine)	2009
New York, NY. Internet map included in article on "Improving Performance on the Internet." February issue.	
<b>QI</b> (television)	2009
BBC (produced by talkbackTHAMES, London, UK). Bible visualization used as topic of discussion.	
<b>Cooperant</b> (Magazine)	2009
Dirección General de Cooperación del Govern Balear, Spain. Internet Map visualization used in April issue.	
<b>Focus</b> (Magazine)	2009
Poland. Bible visualization featured. May issue.	
<b>Computertechnik</b> (magazine)	2009
Hannover, Germany. Internet map appeared in "Visualisierung: Komplexe Informationen vermitteln." Vol. 4.	
<b>The Prism and the Rainbow: Notes on Science, Evolution, Creationism and Christianity for Today's Teens and Their Parent</b>	2009
Johns Hopkins University Press. Baltimore, MD. Bible cross references visualization used for cover image.	
<b>Science</b>	2008
Washington, D.C. "Visualizing the Bible" received honorable mention in the illustration category of NSF's Science and Engineering Visualization Challenge (SEVC). Vol. 321. September 26, 2008.	
<b>Popular Mechanics</b> (magazine)	2008
New York, NY. Custom rendition of the Internet Map provided for a story on "The Coming Digital War."	
<b>Popular Mechanics Russia</b> (magazine)	2008
Moscow, Russia. Interviewed by magazine for six-page article on visualization projects.	
<b>The National Post</b> (newspaper)	2008
Toronto, Canada. Ran full-page spread on the Bible Visualizations. February 27.	
<b>Computing in Bioinformatics</b> (textbook)	2008
Shuba Gopal, Anne Haake, Rhys Price Jones and Paul Tymann. McGraw-Hill, Inc. Internet Map used to illustrate similarities between computer networks and signaling pathways in human cells.	
<b>Blown to Bits: Peril and Promise of the Digital Explosion</b> (textbook)	2008
Hal Abelson, Ken Ledeen, and Harry Lewis. Addison-Wesley. Internet Map visualization included as figure to illustrate world information flows.	
<b>Data Flow, Die Gestalten</b> (book)	2008
Berlin, Germany. Multiple visualizations appeared in "comprehensive survey of innovatively designed diagrams."	
<b>Conocimientos Fundamentales de Computación</b> (textbook)	2008
Ed. Sergio Rajsbaum. Dirección General de Publicaciones, Universidad Nacional Autónoma de México. Internet Map visualization included as figure in networks chapter.	
<b>John and Stephanie Show, 101.5 WORD-FM</b> (radio)	2008
Pittsburgh, PA. Discussed Bible visualizations on air. December 8.	
<b>Tages-Anzeiger</b> (newspaper)	2008
Zurich, Switzerland. "Visualizing the Bible" featured as one of NSF's SEVC winners. September 26.	
<b>Neue Zürcher Zeitung</b> (newspaper)	2008
Zurich, Switzerland. "Visualizing the Bible" featured as one of NSF's SEVC winners. October 1.	
<b>Die Zeit</b> (newspaper)	2008
Hamburg, Germany. Internet Maps visualization featured in double-page spread on the Internet. No. 19, Vol. 63.	

<b>Physics World</b> (magazine) Bristol, United Kingdom. Internet Maps visualization appeared in “The Global-Village Pioneers” article, October issue.	2008
<b>Freitag</b> (newspaper) Berlin, Germany. Internet Maps included in “Was ihr wollt” (as in Shakespeare) article. September 19.	2008
<b>Symmetry</b> (magazine) Batavia, IL (Fermilab). Internet connection density visualization used in “Mapping the Digital Divide” article.	2008
<b>DAG</b> (newspaper) Amsterdam, The Netherlands. Internet map to appear in “Is the web bursting from heavy traffic?” (trans.) article.	2008
<b>GEO</b> (magazine) Hamburg, Germany. Bible visualization featured in September issue article on “The Beauty in the Art of Data.”	2008
<b>Aperture</b> (magazine) New York, NY. Internet Map visualization appeared in the Summer 2008 issue.	2008
<b>GIS Magazine</b> Amsterdam, The Netherlands. Internet Map visualization appeared in the March edition.	2008
<b>De:bug</b> (magazine) Berlin, Germany. Bible visualizations featured in an article about social networks.	2008
<b>Atlas of Science: Guiding the Navigation and Management of Scholarly Knowledge</b> Cyberinfrastructure for Network Science Center, Indiana University. Data from the Royal Society visualization project included in book accompanying the Places & Spaces: Mapping Science Exhibit.	2008
<b>Venice/Migropolis, The Global Atlas of a Situation</b> (book) Ed. Wolfgang Scheppe, Hatje Cantz Verlag. Collaborated with team to produce two custom visualizations.	2008
<b>Homme/Femme Perfumes</b> O Boticário (cosmetics company), São José dos Pinhais, Brazil. Internet Map visualization used for box art.	2008
<b>Quality of Life Technology Summit</b> Pittsburgh, PA. Presented poster on Lean and Zoom; won best poster award.	2007
<b>São Paulo Fashion Week</b> AG407 (advertising Firm), São Paulo, Brazil. Largest fashion event in Latin America (fifth in the world). Internet Map visualization used in the event’s advertising materials.	2007
<b>Internet Society, German Chapter</b> (presentation) Internet map shown during presentation in annual meeting of chapter. The Internet in Africa. November 27.	2007
<b>Online Nation: Five Year Growth Trends in Online Learning</b> (book) I. Elaine Allen and Jeff Seaman, Sloan Foundation. Internet Map visualization used as cover art.	2007
<b>NSF and the Birth of the Internet</b> NSF Special Report, December 20, 2007. Internet Map visualization included as resource material.	2007
<b>New Internationalist’s Youth Diary 2009</b> (book) New Internationalist Publications, Adelaide, Australia. Internet Map visualization to appear.	TBD
<b>Best of DC: ‘Defining Change’ in American Leadership</b> (book) Global Village Publishing, Alexandria, VA. Internet Map visualization to appear.	TBD

## DOCUMENTARIES ASSISTED

<b>The History Channel</b> (Actuality Productions) Provided historical information and helped locate expert slingers for Modern Marvels episode “Bulls Eye”.	2008
<b>The History Channel</b> (Wild Dream Films) Assisted “Ancient Discoveries” documentary on the scientific aspects of the encounter between David and Goliath.	2008
<b>National Geographic Channel</b> (Oxford Scientific Films) Documentary about projectile weapons.	2007



<b>The History Channel</b> (Firefly Film and Television Productions)	<b>2007</b>
Help to acquire historically accurate sling for "Mummy Forensics" documentary.	
<b>Discovery Channel</b>	<b>2004</b>
Provided historical information on the sling for documentary.	
<b>BBC &amp; Discovery Channel</b>	<b>2003</b>
Provided historical sources and information for documentary on David and Goliath.	